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ABSTRACT

Noting that having research evidence to recommend or refute specific policy choices is especially relevant in this era of increased demand for accountability in human services and government, this fact sheet details 10 criteria with which to evaluate the worth of research reports. The 10 criteria or considerations are: (1) consider the source; (2) media are also sources to be evaluated; (3) has the research been published, and where? (4) research results are really about the topic "as measured," not as one may think it is; (5) different types of research have different strengths; (6) sampling is more important that sample size; (7) statistical significance explained; (8) research findings are about groups; (9) all research is not created equal; and (10) any one study is not the whole story. Most of these steps highlight portions of an "advocate's checklist," listing pertinent questions to ask about a given report. (HTH)

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Understanding Research: Top Ten Tips for Advocates and Policymakers. Fact Sheet.

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National Association of Child Advocates

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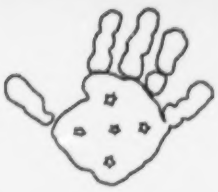

Understanding Research:
Top Ten Tips for Advocates and Policymakers

BY STEPHANIE A. SCHAEFER, PH.D.

Research crosses the desks of advocates and policymakers on a regular basis. You receive a new report from a think tank or government agency, or you read a newspaper article describing the results from a new study.

Research is an important tool because it allows us to assess the effectiveness of the wide array of policies and programs affecting the lives of children and families. Having research evidence to recommend or refute specific policy choices is especially relevant in this era of increased demand for accountability in human services and government.

But how can you tell if a given research study is one you can trust? Below are several tips that can help you to evaluate critically the research you encounter.

1. Consider the source.

It is important to evaluate the credibility of the individual(s) and the organization that produced the research. Research produced by respected researchers and institutions is more likely to be trustworthy. Also, research produced or funded by groups with a strong political or commercial agenda (e.g., partisan groups, or the company which manufactured the product being studied) is less trustworthy, since these groups have a vested interest in the study's findings supporting their viewpoint.

ADVOCATE'S CHECKLIST

- What do you know (or what can you find out) about the person and the organization that did the research?
  What are the author's research qualifications?
  What is the author's reputation as a researcher?
- Is the researcher from a reputable organization, university or research institute?
- Does the person or the organization have a political agenda they consistently promote?

2. Media is also a source to be evaluated.

If you are learning about research through the media, keep in mind that the media coverage may not fully or accurately summarize the original research. Because research can be technical and complex, and because media coverage often seeks to be attention-grabbing and succinct, media reporting of research sometimes oversimplifies the research, leading to misinterpretation. Don't assume that media's report of the research is necessarily what the actual study says, particularly if the media coverage is very brief or provocative. Do follow up by trying to get a copy of the original research article, or by getting more information from additional sources.

ADVOCATE'S CHECKLIST

If you learned about the research through the media:

- Was the media coverage very brief?
  If so, there may be more to the story than was addressed in the limited coverage.
- Was the reporting on it provocative?
  If so, you'll want to determine if the research finding itself has controversial implications, or if the reporting of it played up that angle.

To get more information on research that's getting media coverage, try the following additional sources:

- Media coverage from additional sources, such as other newspapers, many of which are available on the Internet, may provide another perspective.
- The web site of the researcher's organization, the organization sponsoring a conference at which the research was presented, or the journal or publication in which the research was published may have a press release or the full research paper available.

3. Has the research been published, and where?

Research published in peer-reviewed research journals[1] is more trustworthy because it has been scrutinized by other researchers before being published. For example, the *Journal of the American Medical Association*, a peer-reviewed research

1 Research journals use a peer-review process, in which a research article submitted for publication is given to several other researchers knowledgeable in the topic for critical review. These peer reviewers provide independent assessments of the research, and can recommend revisions, or that the article not be published. You can tell if a journal is peer reviewed by looking at the information for authors submitting articles, which is generally included in every journal issue and on a journal's web site.

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journal, is considered a highly reputable source. Unpublished research, or research published in publications that don't critically evaluate it, has not gone through such scrutiny, so you should put less trust in this research. For example, research presented at a conference generally has not yet been published, and thus should be viewed as preliminary until it goes through the full publication review process. This is also true for research that is "unpublished" in the research sense but nonetheless has been reported in the media. However, even good research starts out as unpublished work and is published later, so the fact that a study is unpublished does not mean that it is poor quality. Research published by credible research institutions, such as the Urban Institute, is acceptable; look to the reputation of the research institution as a guide to the trustworthiness of the research.

ADVOCATE'S CHECKLIST

- Has the research been published?

If so:

- Does the publication use a peer-review process?
- How reputable is the journal in which it was published? (You can ask a researcher who works in that field of study how well-respected the journal is.)

4. Research results are really about the topic AS MEASURED, not as we may think of it.

In any research study, the topic studied is measured in some specific way. Knowing how the topic was measured helps you to understand what the research was really about.

For example, a researcher may study child aggression. This topic[2] could mean a lot of different things to different people (calling someone names, or physically attacking someone, for example). Since a topic such as aggression can be so broadly defined, researchers always come up with a more specific, precise definition[3] of the topic they are studying. The definition of aggression in a study could be the number of times the child displayed five specific behaviors (shouting, hitting, kicking, biting, pushing), as observed by researchers or as reported by the child's teacher.

When the results from a study are reported, the results are really about the precise definition (display of specific behaviors observed by the teacher), rather than the larger topic (aggression). In reading research, you want to assess whether the way the researchers defined and measured their topic makes common sense. Much of the time, the specific definition does make common sense and seems reasonable (aggression = hitting people), but on occasion, a study defines a term in an unusual way (aggression = name-calling). In the latter case, it is important to be aware of the definition, because the study may report its findings as being about the broader topic.

Also, different studies may use different definitions for the same topic. It is important to pay attention to these definitions when you are comparing the results from different studies.

ADVOCATE'S CHECKLIST

- How was the research topic(s) defined and measured in this study?
- Does the precise definition used make common sense?
- Did this study use a similar or different definition than other studies have for this topic?

5. Different types of research have different strengths.

Another indicator of the quality of a research study, and the claims that can be made based on it, is the study's research design. The research design is the way the study is structured to answer a question. There are two broader categories of research: quantitative research, and qualitative research. Quantitative research uses numbers, and analyzes and reports data in numeric form. Qualitative research typically reports results through story-like descriptions rather than numbers.

Experimental design studies, a type of quantitative study, offer the strongest evidence about the impact of a program. In an experimental design, researchers randomly assign individuals from the same population to two groups, a treatment group and a control group, and then compare the two groups on some outcome. Experimental studies, known as the 'gold standard' of research methodology, produce the strongest evidence that a program produced an effect. Experimental studies, sometimes called control group studies or experiments, are the only type of study that can show a causal relationship.

Although experimental studies can provide the strongest evidence, there are limitations to the situations in which this research design can be used. Experiments are very expensive to conduct. Also, in the world of social policy, it is often impractical or unethical to assign children to different research treatment groups (children growing up with one versus two parents in the home, for example) to attain the control needed for an experimental study. Another limitation of experiments is that the results obtained under the carefully controlled research situation may not occur in the same way when replicated out in the community. This issue is called *generalizability*.

Quasi-experimental and survey studies are another type of quantitative research design that are useful for measuring the effects of different programs on children. Quasi-experimental studies do not use random assignment to create the groups being studied. Instead, they find comparable groups in which to

2 The research topic being studied is called a *construct*.

3 This precise definition is called an *operational definition*.

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study the effects of different programs. These studies can find associations between a program and children's outcomes, but they cannot be used to establish a causal relationship. For example, a quasi-experimental study may find that children who participated in an enrichment program had better social skills than those that did not, but it cannot prove that the program caused the increase in social skills (perhaps the children who participated in the program had better social skills to begin with). Quasi-experimental studies are especially useful for studying complex systems as they exist naturally in the community. They are the best approach for large-scale studies which study larger numbers of people and which study more topics.

Although advocates less often use qualitative research, it is another useful approach. Qualitative research, which typically reports data in non-numeric form such as categories or descriptions, can be an important source of information. Qualitative studies often provide descriptive, story-like accounts of people's experiences in a program or in a community. Qualitative research is particularly well-suited to finding out new things you didn't know to look for and ask about in a survey.

6. Sampling is more important than sample size.

As many advocates know, the study's sample size[4] is important. The minimum sample size needed in quantitative research depends on how big the effects being studied are, so there is no rule, but a general guideline for a minimum sample size might be 30 to 50 people. The larger the sample, the smaller the difference needed between groups to attain statistical significance.

But even more important than sample size is the way the sample was collected. Quantitative research is based on the assumption that the findings for a sample of people can be generalized to the larger population. Researchers collect information on a sample of people in order to determine the effects of a program for the full population. For example, a study will select a sample of 100 children in afterschool programs, and this sample is intended to represent the population of all children in similar programs. Researchers use careful procedures to select their samples. One appropriate procedure, the most commonly used, is random selection, but there are other appropriate sampling procedures as well. If the sampling procedures aren't done well, then we cannot assume that the findings for the sample generalize to the population, and the study's findings would not be valid.

One important aspect of good sampling is the response rate.[5] If a study has a low response rate, then this means that a portion of the carefully selected sample was not studied. It is possible that the people who did not respond are different in some systematic way from the people who did respond. For example, in a written survey, people who do not answer the questions might have lower literacy skills than the people who did answer it. The response rate is very important for this reason. While there are no hard and fast rules on response rates, a general guideline for an acceptable response rate would be 50%, and a very good response rate would be 80% or higher.

ADVOCATE'S CHECKLIST

- What is the sample size used in the study?
- How was the sample selected?
- What was the response rate for the study?

7. Statistical significance explained.

One of the things advocates value most about research is getting "hard data" – numbers – about the effects of a policy on children. A study reports a statistically significant difference between those who received a program and those who didn't. But what does statistical significance mean, and what can we conclude from it?

A statistically significant result is one that is unlikely to be due to chance. Researchers use statistics to test whether the results they found are likely to be due to the effect of the program being studied, and not to other unrelated factors.

Let's take a hypothetical example: a study found that children who received preventive health services had significantly higher rates of school attendance than children who did not have access to these services. Specifically, 75% of children who had health care had good school attendance, but only 50% of children without preventive health care had good attendance. That this finding was statistically significant means that it is highly unlikely that the difference found between the two groups was due to chance; therefore, it is likely that the difference between the groups was really due to the difference in access to health care.

Statistical significance is different than the substantive significance, or meaningfulness, of a finding. A result may be statistically significant but unimportant (sample size is crucial here, because a very small difference will be statistically significant if group sizes are large). Conversely, a result may not be statistically significant, perhaps because the sample size was too small, but it may be meaningful nonetheless because it suggests an important change in an outcome.

8. Research findings are about groups.

Research results are usually based on comparisons between groups of people. For example, a study may find that children in program X have higher reading scores than children in program Y. That research findings are based on groups of people makes them particularly relevant for policy decisions, since policies affect groups of people, but less relevant for individual case decisions.

4 The sample size is the number of people included in the study.

5 The response rate is the proportion of people who were selected to be in the study compared to those that actually participated.

In addition to looking at the difference between two groups, it is also worthwhile to look at the absolute levels of performance in each group when deciding what this research tells you. Let's say that 85% of program X children and 70% of program Y children read at a fifth-grade level. Let's also assume that this is a statistically significant difference, and a meaningful difference as well. While it is true that program X children did better, it is also important to note that most of the program Y children also are reading at this level (it would be a different story if only 10% of program Y children were reading at the fifth-grade level). Knowing how big a difference there is between the two groups studied, and what the absolute levels of performance are for each group, taken together can help you make more informed policy decisions.

ADVOCATE'S CHECKLIST

- For a finding comparing two groups, what were the absolute levels of performance for each group?

9. All research is not created equal.

When comparing the results from different studies with conflicting findings, higher-quality studies should be given more weight (you can use the tips provided in this fact sheet as a guide to determining the quality of a study). Better studies can refute poorer studies; there is not a one-to-one comparison.

10. Any one study is not the whole story.

Although we usually come across research one study at a time, from the news or a new report, research is most valuable when many specific studies are taken together to tell the whole story of what we know on a given topic. Research, as a tool for scientific discovery, is designed to work this way. Science is about the aggregation of specific studies, one building on another to increase our knowledge base.

Any single study, no matter how good, needs to be viewed in the context of other research on the topic. Finding articles which summarize and synthesize the results of many studies, called *literature reviews*, is one good way to get a sense of the bigger picture that research can tell us about a given topic. Most research articles provide a brief review of the literature, and there are some specialized articles which provide comprehensive literature reviews.

When you learn about an interesting new finding, it is worth asking if there has been other research on this topic before, and if so, what the other past research has found. Some topics have had extensive research conducted on them, and therefore we have substantial evidence to point to. In other topics, there may be little research. If there haven't been numerous studies, it is premature to consider that we really *know* what works.

Studies in new topic areas are important, and give us an important indication of what direction things may be going. But they are certainly not definitive; we need to have numerous studies before researchers would say that we have a solid basis of evidence on what works in a given policy area.

ADVOCATE'S CHECKLIST

- Has there been other past research on this same topic? How much additional research?
- If this study's findings are different than past research, did the researchers explain why it is different?
- Has there been enough high-quality research so that we can say we know a lot about what works in this topic area? Or has there been only a little research, so we should only consider the research as suggestive of what might be going on, rather than more definitive.

Conclusion

Child advocates often use research to guide their policy recommendations and make persuasive arguments. To make the best policy choices for children, and to ensure your credibility, it is important to evaluate critically the research information you use. This fact sheet can assist you in using research effectively.

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